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EDITORIAL

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This magazine is devoted to a serious study of unidentified flying objects, commonly known as "flying saucers".

Most sightings of flying saucers can be explained as jets, meteors, weather balloons, etc., but a small percentage of these reports is utterly inexplicable.

Flying saucer reports should be examined with an open mind whenever the background of the observer is reliable. When a priest, two doctors and two company directors give precise reports about unknown airborne objects in the sky, their testimonies can not be ignored.

For lack of any other satisfactory explanation, civilian investigators believe that flying saucers come from other worlds in space. The majority of scientists can not subscribe to this theory because they do not think there is a planet suitable for higher life in the solar system except the earth, while other solar systems are much too far from us.

However, there are astronomers in the world today who are progressive enough to admit the possibility of space travel between the islands of life scattered in the ocean of space.

Frank Halstead, a reputable astronomer of Minnesota, said during an interview with the radio commentator Frank Edwards: "I feel that we have had visitors from space - just as I feel that in the universe we are not alone."

Over Radio Moscow Dr. Felix Segal, a Soviet astronomer, has stated his belief that beings more intelligent than man possibly existed on other planets. He also remarked that "the beings could already be making flights into space." Dr. Segal suggests meetings with "these other space travellers."

According to Dr. William Howells of Harvard, "intelligent beings abound in the universe and most of them far older than we are." Yet most astronomers can not accept the theory that we have visitors from space because of the distance factor in interstellar travel. If plans for "photon ray" propulsion of space rockets are under weigh on this earth, is it illogical to think that an older civilisation in the cosmos has already surpassed us in technology and is able to navigate space ships flying with a speed approaching that of light?

Venus and Mars will be photographed in the immediate future. This exploration will settle that part of the "flying saucer controversy" which concerns their origin. The discovery of an advanced civilisation on Mars will elevate this subject to the level of a branch of science.

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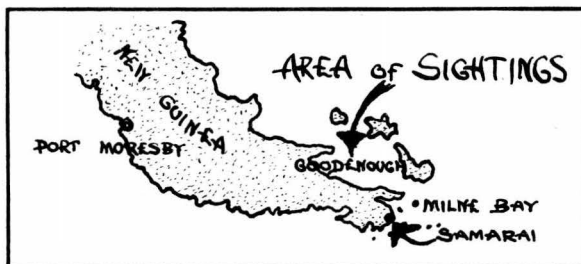
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THIS QUARTERLY MAGAZINE AMALGAMATES "UFORUM" (VICTORIA) & "UFO BULLETIN" (N.S.W.)

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AN ANGLICAN PRIEST CONTACTS PILOTS  
OF AN UNKNOWN CRAFT OVER NEW GUINEA



The extraordinary experience of the Rev. Father William Booth Gill is unique in the history of unidentified flying objects research. Father Gill is an ordained priest of the Church of England, and a graduate of Brisbane University. His ecclesiastical and academic background puts the stamp of reliability on this report.

The Victorian Flying Saucer Research Society and the UFO Investigation Centre of N.S.W. have interviewed Father Gill. A resume of these tap-recorded interviews is presented below.

Q. Father Gill, will you be kind enough to let us know the nature of your activities in recent years in Papua?

A. I have been on the staff of the Anglican Mission in Papua for thirteen years - my main interest up there has been educational work, and I have been working mainly on the north-east coast of Papua, in Goodenough Bay area, about ninety miles from Samarai, Milne Bay.

Q. Father Gill, we understand you, or your mission folk, had a series of interesting experiences during the month of June - when, and on what dates did these occur? Also what did you think about unidentified flying objects before your experiences?

A. Until my sighting I thought UFOs were a figment of imagination or some electrical phenomenon. Well, the first sighting occurred over Waimera about twenty-five miles from us. It was observed by Dr. Ken Houston at a place called Waimera, near Tagora, and that was late November of last year. At Boianai itself, where I'm working, the first recorded incident was on the night of Sunday, 21st June. My own observations began on 26th June and extended over a number of days.

Q. Taking them, then, in date order, when did the first sighting that you saw occur?

A. That was on 26th June, at 6.45 p.m., and it continued until 11.04 p.m.

Q. Over which district was the object seen?

A. Milne Bay district, over Boianai.

Q. Did the object - appear solid? metallic? gaseous? transparent?

A. Well, it appeared solid, certainly not transparent nor gaseous; we just assume it was metallic from our own experience of things that travel and carry men.

Q. Was any sound perceptible?

A. No.

Q. Did the object change colour?

A. Yes, it changed from a brilliant white light when it was far off, to a dull yellow, or perhaps pale orange, when it was close.

Q. Did the object hover, or remain motionless at any time?

A. It both hovered and remained stationary.

Q. What was its speed in flight?

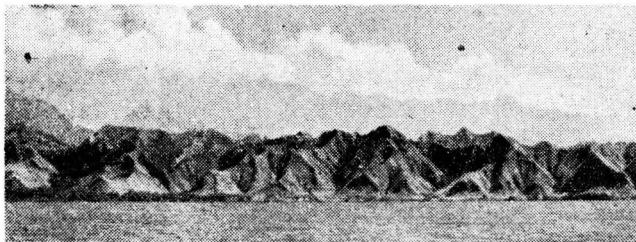
A. Much faster than a passenger plane.

Q. The height you mention was a couple of thousand feet. Which of the following objects held at arm's length would you have described as apparent size? - a grapefruit?

A. Yes.

Q. Describe the weather:

A. Well, the weather varied over the four hour period. I have it recorded here. At the beginning, at 6.45 p.m., there were patches of low cloud over Tagora and Menapi, that is



west and east of us, and clear overhead. At 7.10 it was recorded that a cloud ceiling overhead was at about 2000 feet....I may mention that at this time the object was under the cloud ceiling; then at 8.28 there was a clear sky overhead, but there was heavy cloud over the west at Tagora. At 8.50 cloud was forming again overhead, and for the next hour or so there were patches of cloud over the sky, then at 10.50 we recorded that it was very overcast, and by that time the unidentified flying object had gone and we had heavy rain at 11.04 - that's when we finished the recording.

Q. What were you doing at the time you saw the object, and how did you happen to notice it?

A. I came out of the dining room after dinner and casually glanced at the sky with the purpose, I suppose, of seeing Venus. Well, I saw Venus but I also saw this sparkling object which was to me peculiar because it sparkled, and because it was very, very bright, and it was above Venus and so that caused me to watch it for a while, then I saw it descend towards us.

Q. Were there any witnesses to this?

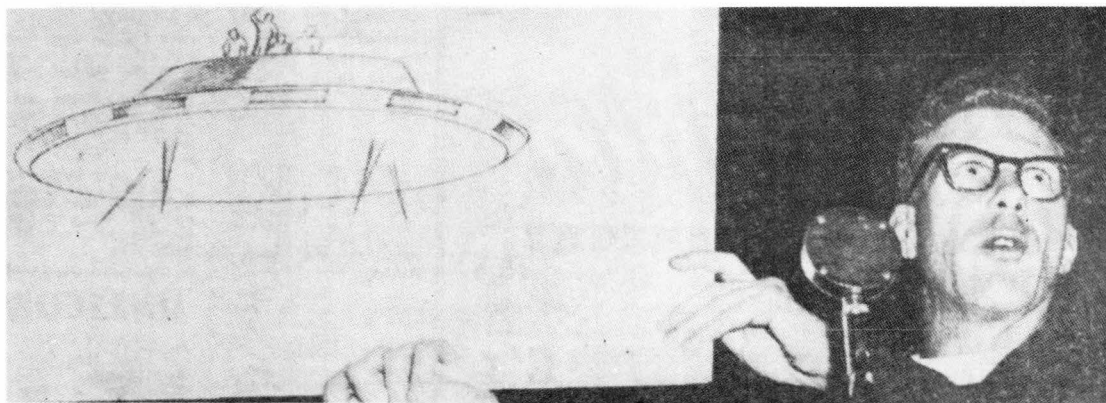
A. Yes, there were thirty-eight of us.

Q. What further remarks would you make regarding this first sighting of yours?

A. Well, of course, the whole thing was most extraordinary; the fact that we saw what appeared to be human beings on it, I think, is the important thing. It is certainly the important and exciting thing to us. They were not noticeable at first - they came down, the object came down at about, I should say, 400 feet, maybe 450 feet, perhaps less, maybe 300 feet. It is very difficult to judge at that time of night and not having experience in measuring elevation, it's purely guesswork, but as we watched it, men came out from this object, and appeared on the top of it on what seemed to be a deck on top of the huge disk. There were four men in all, occasionally two, then one, then three, then four - we noted the various times that men appeared, and when one, two and three appeared and one and two, and then numbers one, three, four and two and so on. And then later all those witnesses who are quite sure that our records were right, they agreed with them, and saw these men at the same time as I did - they were able to sign their names as witnesses of what we assume was human activity or beings of some sort on the object itself. Another peculiar thing about it was this shaft of blue light which emanated from what appeared to be the centre of the deck. Now from time to time men, these men, seemed to be working at something on the deck; they'd bend forward and appear to manipulate something on the deck, and then straighten themselves up occasionally, would turn around in our direction, but on the whole they were interested in something on the deck. Then from time to time - this blue light - rather like a thin spotlight emanated skywards to stay on for a second or two, and then switch off. I recorded the times that we saw that blue light come on and off - for the rest of the night. After all that activity it ascended and remained very high.

Q. What did the craft look like?

A. Like a disk with smaller round superstructure, then again on top of that another kind of superstructure - round rather like the bridge on a boat. Underneath it had four legs in pairs pointing diagonally downwards - these appeared to be fixed, not retractable, and looked the same on the two nights - rather like tripods. On second night the pencil beam came on again for a few seconds, twice in succession.



Q. Do you have any clues as to the dimensions of the object?

A. I'm a very poor mathematician but I, at the time, dared to say that it was about thirty-five to forty feet at the base and perhaps twenty feet at the top.

Q. Did you try to establish contact with the pilots of the craft?

A. We did. As one of the men seemed to lean over as though over a rail and look down on us, I waved one hand overhead and the figure did the same as though a skipper on a boat waving to someone on a wharf. Couldn't see the rail but he seemed to lean over something with arms over it....could see him from just below waist up. Ananias, the teacher, waved both hands overhead and the two outside figures waved back with two arms over heads. Then Ananias and I both waved arms and all four figures seemed to wave back - no doubt that movement made by arms was answered by the figures.

Q. What was the reaction of the natives at signals?

A. Surprised and delighted. Small mission boys called out - everyone beckoned to invite the beings down but no audible responses....no expressions discernible on the faces of the men - rather like players on a football field at night.

Q. Did the machine cause any noise?

A. No engine noise heard at any time by anyone during the whole series of sightings.

Q. We understand you tried to signal the beings with a torchlight?

A. Yes, we flashed the light and the object swung like a pendulum, presumably in recognition. When we flashed the torchlight towards it, it hovered, and came quite close towards the ground....and we actually thought it was going to land but it didn't. We were all very disappointed about that.

THE PORT MORESBY FILM.....DOES IT  
SUPPORT REV. FATHER GILL'S CASE ?

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A strip of motion picture film containing ninety-four frames corroborates the New Guinea sighting of Reverend W.B. Gill. This is the so-called Port Moresby film taken by T.C. Drury, Deputy Director of the Civil Aviation Department in New Guinea, on August 23rd, 1953.

This illustration, drawn from the actual frames of the film, shows a disk-shaped object in flight.



Mr. W. McMahon, Minister for Air, stated at the time that experts of the R.A.A.F. had examined the film. The object did not decrease speed in ascent and made ninety degree manoeuvres.

According to Mr. Drury the motion picture was taken at midday. First a cloud appeared in a clear sky. Out of this cloud a silvery object emerged, flashing brightly in the sun. It made an abrupt right-angled turn, zooming straight up, with no reduction in speed. Upon reaching a greater altitude it levelled off again with another abrupt right-angled turn.

The PORT MORESBY FILM is at present in the hands of the Intelligence of the R.A.A.F.

According to the former Minister for Air, the man who took this motion picture is "a reliable, credible person." The film has been seen by the United States Air Force experts. It is still officially unexplained.

Was the disk similar to the craft observed by Rev. Father Gill and the thirty-eight native witnesses?

R.A.A.F. INTELLIGENCE INVESTIGATING NEW GUINEA SIGHTINGS \_\_\_\_\_

In order to get a statement from Canberra on the New Guinea sightings, Mr. Peter Norris, LL.B., the President of the Victorian Flying Saucer Research Society wrote to the Director of Air Force Intelligence on 12th September, 1959. His letter reads:

"Dear Sir,

My Society has been undertaking investigations into the alleged sightings of unidentified flying objects reported by the Rev. Father W.B. Gill of Boianai Anglican Mission, Papua, New Guinea.

Since Father Gill and his many witnesses reported exchanging signals with humanoid beings aboard the object, these sightings, once established as authentic, appear to furnish the much-coveted proof that the UFOs are intelligently guided machines.

Accordingly, I respectfully submit your Department the following questions, trusting that you will see fit to assist us in our enquiries:

1. Has the Department initiated enquiries into Father Gill's claims? If so, has any conclusion been reached as to the veracity and accuracy of these witnesses?
2. If the reports are regarded as genuine, has the Department arrived at any conclusion as to the nature and origin of the objects described therein?
3. If the Department has not, in fact, investigated the reports, is the Department satisfied that these incidents do not constitute the infringement of Australian territorial jurisdiction by aircraft emanating from an alien earth nation?

Yours truly,  
(signed) Peter E. Norris, LL.B.  
Hon. Pres., Victorian Flying Saucer Research Society"

The reply from the Directorate of Air Force Intelligence, Department of Air, Canberra, arrived about a month later.

"Dear Mr. Norris,

Thank you for your letter of 12th September, 1959.

We have no official information of any sightings by Gill in New Guinea, but we are now making enquiries into the matter.

15th October, 1959

Yours sincerely,  
(signed) D.F. Gilson (Squadron Leader)

A tourist from Singapore travelling east along the equator via Equador and Congo would cover about 25,000 miles on his around-the-world trip. If we stretch this distance as a yardstick and multiply it ten times, the other end of this huge yardstick would reach the moon. Had the moon and the earth been stationary, it would have been a comparatively easy task to aim at the moon and hit it. But both bodies are moving. Lunik II reached the moon on September 14th and the launching of Lunik III, an automatic interplanetary station, was announced on October 4th.

This lantern-shaped station with a guidance system and equipment to photograph the hidden side of the moon reached its closest point to the moon - 4,375 miles - on October 8th. The 600 lb satellite took pictures of the other side of the moon for forty minutes on October 8th, when it was about 40,000 miles from the moon. The moon probe poses the following questions:

IS THE MOON A DEAD PLANET?

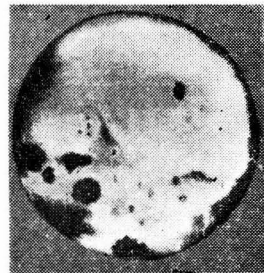
DO COSMIC VISITORS USE THE MOON AS A BASE?

Not until more space stations orbit around the moon, or the rockets actually land there would the first question be answered. Because of the absence of water and atmosphere plant and animal life of the terrestrial type can not exist on the moon. But bacteria may live on the moon.

The second question is very provoking. It is thought that a more evolved humanity on another planet could have mastered space travel. If so, its astronauts may be using the moon as a base.

Professor Walter Riedel, formerly Director of the V-2 Penemunde Base, offers the following opinion in reference to the flying saucers: "It is possible that these machines come from Mars using the side of the moon invisible to earth as a base."

Dr. John Russell, head of the University of Southern California Astronomy Department, supports Professor Riedel by saying: "If there were flying saucers from Mars scrutinising our planet, then the back side of the Moon would be an ideal staging platform for them. Martian space craft could (at the time of the new moon) circle around the moon several times before landing and still go unobserved. And once landed on the back side, they would be absolutely safe from further detection later."



*The "new" face of the moon, as seen by the Russian satellite camera.*

Will lunar exploration confirm these suppositions?

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#### SPACE INVASION ON THE AGENDA OF UNITED NATIONS

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Portugal's delegate, Dr. Vasco Garin, told the United Nations on October 27th that the Soviet proposal for total world disarmament raised many delicate questions. He said it was not absurd to imagine a sudden invasion of earth by "aggressive warriors" from another celestial body.

"Our forces, including those of the Soviet Union, would cut a poor figure if we had only

knives and pocket slings with which to defend ourselves", Dr. Garin said.

However, the Soviet Union does not seem to think that there is any danger from space. During his trip to Detroit, Frol Kozlov, Soviet First Deputy Premier, referred to the Russian theory that the Siberian Meteor of 1908 was a "cosmic ship" and said: "A number of years ago a big, burning object landed in our country. Some people say it was a meteorite, but others say it was a Martian rocket ship that burned up in the atmosphere." A reporter suggested that if that were true, a Soviet-American alliance might be needed against the Martians. Mr. Kozlov laughed and started to agree. Then he said: "Perhaps the Martians are also a peaceful people. Then we should not make warlike alliances against them, but would try to live in peace with them...."

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## M. P. s    D I S C U S S    I N T E R P L A N E T A R Y    D I P L O M A C Y

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Lord Fraser of Lonsdale asked in the House of Lords on June 18th, 1959, if the Government sought or received any advice "as to the possibility or probability that any sentient creatures live in other worlds, and whether any attempts at communication have been considered or foreshadowed."

Lord Hailsham replied that "the Government does not include communications with any possible inhabitants of other worlds among the objects of the United Kingdom space research programme. Certainly the Government has not sought or received any advice as to whether sentient creatures live in other worlds....." (LAUGHTER)

The existence of intelligent beings throughout the galaxy and possibly even in our solar system is seriously considered by the foremost astronomers of the world.

In Australia Mr. W.F. Crabtree, the State Labour member for Kogarah, asked the Minister for Civil Defence (Mr. Heffron) to take precautions against interplanetary reprisal attacks. Mr. Crabtree said: "There is a definite risk that superior beings in outer space might start retaliating if we keep up this indiscriminate firing of interspace rockets."

In reply to the Daily Mirror (Sydney) Mr. Crabtree had this to say:

Q. Were you serious when you asked your question in the House last night (Sept. 15th)?

A. Oh, yes! I was quite serious.

Q. Do you seriously think there is any threat of reprisals?

A. It is possible that if there are superior beings on other planets who know that rockets are being fired at them from earth they might retaliate.

Q. You think that they might fire rockets at us?

A. They might fire rockets or take some other action.

Q. Do you think, then, that reports of flying saucers are an indication that these outer space areas are inhabited?

A. The many reports of flying saucer sightings from reliable sources give weight to the argument that there could be life on other planets.

Q. Have you ever made a study of flying saucer science?

A. No, mine is a layman's point of view. All I know about them is from the reports in the newspapers. But I am absolutely sure that scientists should be equally certain that there is no life in outer space before they fire any more rockets.

Q. Do you think there is any danger of retaliation by the moon?

A. The moon, or other planets; I see that some scientist has already said that there is life on the moon.

Q. You mean the report of the Soviet scientist who said he believed that there were micro-organisms on the moon, probably very small and primitive?

A. I don't know what type of life - I'm only speaking as a layman.

Q. Do you think that shelters ought to be built?

A. There is no use building shelters until we know whether there is any danger.  
Q. Did you ask your question in Parliament to try to get Mr. Heffron to take some positive action?  
A. The question was designed more to see if I could awaken the people to the fact that there could be a real danger from other planets.

Also in September a British jurist wrote to a Soviet scientist warning of the "possibilities of exploration, if not of invasion, by the inhabitants of another solar system."

Mr. Christopher Shawcross, Q.C., was writing in his capacity as chairman of the Provisional Institute of Space Law (U.K.). He wrote to the President of the International Astronautical Federation on Space Travel, Professor Leonid Sedov.

In his letter, Mr. Shawcross wrote that there should be intensive study at international level on the problems and dangers involved in space travel.

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#### VICTORIAN FLYING SAUCER RESEARCH SOCIETY N E W S

U F O    O B S E R V E R  
C O R P S   E S T A B L I S H E D

A sub-committee of the VFSRS has recently been set up under the direction of committee members Norman Hall and Judy Magee to establish a state-wide organisation known as the Victorian UFO Observer Corps, which will operate under the aegis of the Society.

More than 150 country newspapers were circularised by the sub-committee and their generous co-operation has resulted in the enrolment of interested persons from all parts of the state.

The network of Observers will function principally by reporting to headquarters the appearance of any unusual objects or lights in the skies above their respective districts. It is hoped that sightings reported from all parts of the state by Observers will ultimately reveal a discernible pattern in UFO appearances. Observers will also act as public relations officers of the Society by disseminating information pertaining to UFOs through the news media of their district.

REVEREND FATHER GILL  
ADDRESSES VFSRS MEETING

Approximately 230 persons attended a public meeting organised by the VFSRS at Nicholas Hall, Melbourne, on October 28th, to hear Father Gill describe his recent sightings of UFOs over New Guinea. The audience listened raptly to Father Gill's hour-long address, and then asked questions for a further 30 minutes.

The meeting received good notices in the following morning's press. Father Gill has subsequently appeared on ABV Channel 2's popular session "People" and was also heard Australia-wide on the ABC weekly radio session "Scope".

V F S R S  
M E M B E R S H I P

Membership to the VFSRS costs one guinea per annum (husband-wife membership £1.10. 0 per annum). Members receive membership cards, free copies of "Australian Flying Saucer Review" and full library facilities. The library contains a comprehensive selection of UFO works, which are mailed on loan to any part of Victoria. Further details of membership may be obtained by making application to the Secretary, Miss Dorothy Gillman, at P.O. Box 32, Toorak, Victoria.

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V F S R S	President: Peter Norris	Vice-Pres. & Treasurer: Ben Spencer
OFFICE	Secretary: Dorothy Gillman	Librarian: Geoff Rumpf    Asst. Lib.: Norman Hall
BEARERS	Committee: Judy Magee, Norman Hall, Claude Bezzi, Rodney Coutts, Ian Godden	

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Russian Scientists Believe There Is \_\_\_\_\_  
PLANT, ANIMAL AND HUMAN LIFE ON MARS \_\_\_\_\_

Recent discoveries in the new science  
of Astrobiology (compiled from LIFE  
ON OTHER WORLDS by L. Golosnitsky,  
Moscow, 1955) \_\_\_\_\_

Is there life on other planets? This question is one of the deepest and most complicated which excite the human mind. Even the nearest planets are separated from earth by an abyss of universal space. Is it possible to ascertain correctly the presence of life on a celestial body situated millions of miles from the earth?

This most difficult problem, once thought insoluble has been recently solved by a Soviet scientist - Gabriel Adrian Tikhov. As a result of his labours within the walls of the Alma-Ata Observatory a new science was born - astronomical biology or, briefly astrobiology.

In biology the chemical reaction of a living substance with the substances of the environment bears the name of metabolism. Let us take a stone. It has no exchange of substances with the environment. On the contrary, the better it is isolated from the action of the environment - that is, from the action of water, atmosphere, change of temperature, the longer will it be preserved. A living organism is in continuous inter-action with the surrounding environment - it eats, absorbs water and breathes. It builds its body from the assimilated substances and excretes that which is used up and not required. As a result of the continuous mutation of substances, the organisms grow, develop and multiply. These biological processes of growth, development and multiplication distinguish a living substance from non-living matter.

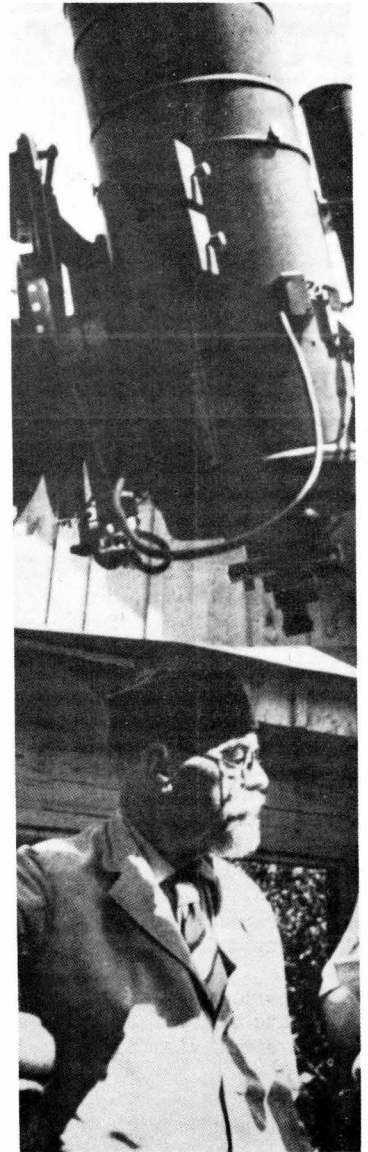
What conditions are necessary for life? Firstly the temperature on the planet should not be too high nor too low. Both extreme cold and extreme heat are dangerous for proteins of which the bodies of plants and animals are made up.

Secondly, the planet must have water. Water is an important component part of any organism. The passage of nutritive substances and various vital processes take place by means of water.

Thirdly, the planet must have an aerial envelope - an atmosphere. the Air is necessary mainly because it is atmospheric pressure which keeps water in the fluid state.

Such are the three conditions necessary for life - a suitable temperature (not too high or too low), the presence of water and the presence of air.

Mars is in many respects similar to earth.



Academician G. Tikhov

It revolves around its axis in 24 hours 37 minutes. Its day is only slightly longer than the terrestrial day. It has change of seasons - as on earth, winter cold is replaced by warm spring days, then summer follows spring and autumn comes in place of summer. However, each season is twice as long as on earth. Mars has water and air.

But there are many differences between the physical conditions of earth and Mars. Mars receives less sunlight and warmth. Its diameter is half that of the terrestrial. This determines the physical conditions on the planet - there is lower temperature on Mars than on earth and the air is more rarified.

The material uniformity of the universe permits one to think that there are likewise radioactive substances in the composition of Mars, and they were more plentiful milliards of years ago than at the present time. Nuclear fusion energy had then warmed up the crust of the planet and resulted in a violent volcanic activity.

The surface of the moon tells us how violently volcanic activity manifested itself even on the small planets in the early periods of their evolution. The crust of this small satellite of earth is covered with abundant craters and mountains, cracks and clefts. All this is the result of past volcanic activity. During volcanic eruptions the bowels of a planet emit steam and carbon dioxide. Carbon dioxide plays the same role as glass in a greenhouse - it preserves the warmth on the surface of the planet.

Consequently, in the distant past Mars had a humid, hot climate. It is then that life could have, or rather should have begun in a natural way. Therefore, the organic world on Mars developed in the past in conditions of a hot climate.

The observations of Mars are very difficult because of the huge distance between it and the earth. To discern minute details on the small disk of the planet through the telescope can be done with great difficulty in the rare minutes of relative calm of the terrestrial atmosphere. In this case powerful magnification does not help. With a magnification of 1800 times the planet will be seen much worse than with one of 800 times. True enough, its disk will become larger, but it will lose brightness and the vibrations of the earth's atmosphere will cause its minute details to quiver and fade.

Scientists have tried since the last century to find a way to improve the visibility of Mars. G.A. Tikhof has succeeded in solving this problem. He has introduced light filters for observations. These are glass plates of various colours through which is examined the telescopically enlarged image of the planet.

Light filters make it possible to observe surface details of the planet in the rays of one definite colour. They strengthen the contrast between differently coloured formations and improve the visibility of the faintly coloured and weakly illuminated details.

For example, the red light filter considerably darkens the greenish patches of the "seas" which stand out well on the light background of the continents. It improves the visibility of "canals" - the mysterious thin lines which cover the surface of Mars. Changing the red filter to a green one we shall see new formations so far imperceptible - white streaks crossing the disk of the planet in different directions, sometimes projecting beyond the edge of the disk. These are clouds slowly floating in the air above the plains of Mars.

Besides improving the visibility of surface details on the planet, light filters are able to determine precisely the colour tones of the objects. For example, all green objects, seen through a green glass appear very light, red ones dark and white as green.

By observing an object successively through various light filters, its colour can be unmistakably determined. And as each substance has a definitely characteristic colouring, light filters enable us to decide, with a great degree of probability, what materials the different formations on the surface of Mars are made of. Thus, for instance, by means of light filters, it has been ascertained that the polar caps of Mars are composed of ice, and partially of snow, and that the orange "continents" are sandy-clay plains similar to the "red sands" of certain deserts in central Asia.

The surface of Mars is considerably levelled. On it we can not see any mountain ridges and its vast deserts are not intersected by chains of mountains. It is only in certain places - in the desert of the northern hemisphere and near the south pole that we see through the telescope bright, white spots. This is permanent snow, shining in the sun on tops of lonely mountains.

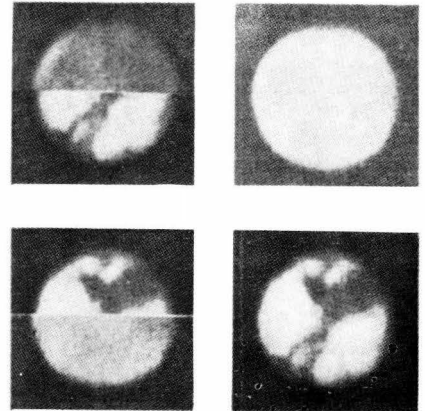
What does the even relief of Mars suggest? Firstly, that the processes of the formation of mountains have long ceased on the planet. Secondly, that the volcanoes and mountains which must have appeared in the early stages of the evolution of the planet, have already been destroyed by erosion and wind in the course of hundreds of millions of years.

If in the past Mars had had little water and the air had been very thin, the process of levelling of the surface could not have gone so far.

The moon has preserved traces of ancient volcanic activity only because the gaseous and watery envelopes are absent.

On Mars we observe an entirely different picture. Its even relief tells us about the past ages of the planet when it had abundant water and the air was denser and more humid than at present. Slowly but surely water and wind levelled the Martian mountains, destroyed rock formations, transforming them into sand and clay dust.

The thickness of the polar caps is unknown. They are not simply frost as some scientists think. In spring frost would have evaporated into the atmosphere without moistening the soil and yet, in fact, we do observe a considerable wetting of the soil. Around the melting edges of the snow cap a dark band is formed which should be a few score miles wide. This is the darkening of the Martian soil absorbing the water from the melting snow.



MARS through ultra-violet and infra-red filters. Note thickness of the atmosphere on left.

Is there oxygen in the Martian atmosphere which is essential for the breathing of animals and plants? Yes, but very little. But carbon dioxide is present in a quantity double that of the earth. This discovery was made in 1947 and it has an important bearing on the solution of the problem as to the possibility of life on Mars. After all, carbon dioxide is the food of plants.

If earth plants have adapted themselves to severe cold and drastic changes of temperature, Martian vegetation must have adapted itself to the severe climate of the planet in the process of its historical evolution. Thus, plant life is probable on Mars. But are there any phenomena on this planet which suggest that vegetation on Mars really exists? Yes, they have been observed.

This is what Academician N.P. Barabashev writes in his article "Life in the Universe":

"At the present time the attention of astronomers is drawn mainly to the "seas" and "canals" of Mars. Observations of a number of astronomers, including G.A. Tikhov's and my own, show that some dark spots have very often clearly manifested greenish and bluish hue. There are spots which become green in spring, yellow in summer and, eventually, pass into greyish tones. Some spots remain green in summer and winter. From these observations a supposition can be made that Mars has vegetation which becomes yellow in autumn and some perhaps evergreen, unlike our coniferous trees."

Seasonal changes on Mars are remarkably similar to the changes of colour of the vegetative covering of the earth. They resemble the spring awakening and the blossoming of terrestrial vegetation with the coming of the warm days and its withering in autumn when cold winds,

the messengers of the coming long, severe winter, begin to blow.

In the spectrum of the radiation of earth flora there is always a characteristic band of chlorophyll absorption in the red rays - a dark line at the red end of the spectrum. This line is caused by the fact that chlorophyll grains absorb red rays, using their energy for the manufacture of nutritive organic substances. If in the spectrum of the "seas" of Mars a chlorophyll absorption line were discovered in the red rays, certain proof of the existence of vegetation covering the territory of the "seas" would be obtained. However, the most thorough tests could not discover chlorophyll absorption lines. Many scientists have concluded because of this that there is no vegetation on Mars.

Pondering over this problem, G.A. Tikhov noticed the following fact. Investigators have compared the optical properties of the "seas" of Mars with earth plants, living in the tropical or temperate climates. But the climate of Mars is very severe and its surface receives  $2\frac{1}{2}$  times less sunlight and warmth than the earth.

Since all plant life is connected with the sun and depends on the sun's light and warmth, it follows that plants on distant Mars must have necessarily evolved the ability to absorb the energy of the sun's rays to the utmost.

Our plants are satisfied with the warmth carried by the red rays. This quantity of heat is obviously not sufficient for the Martian plants. In order to grow and develop successfully they must absorb the energy not only of the red but of other longwave rays - firstly, the infra-red.

How would this ability be expressed outwardly? First of all, the "seas" would not dissipate the infra-red rays which carry half of the sun's heat. Therefore, on plates sensitive to infra-red rays, the "seas" must not be white, but have a dark colour - something that is observed in reality. Secondly, chlorophyll absorption line in the red rays of the Martian plants must extend into the orange, yellow, and partially into the green rays (which carry another third of the sun's heat) and thus becomes invisible. Therefore, in the spectrum of the Martian "seas" the chlorophyll absorption line must be absent. Such is, in fact, the case.

Thirdly, as the Martian plants strongly absorb the longwave, or warm section of the visible spectrum - that is, red, yellow and partly green rays, then the cold rays - that is, part of the green, blue, indigo and violet, predominate in the reflected light and give the plant a cold colour.

And inasmuch as the colour of the object is determined by the rays it reflects, the Martian vegetation must have greenish-blue or bluish colour, which is, in fact, the case.

Thus G.A. Tikhov has removed theoretically the basic objections to the existence of vegetation on Mars.

How could these explanations be checked?

G.A. Tikhov decided to analyse the optical properties of plants living in the tundra, on tops of high mountains, or in severe conditions approaching those of Mars. At the same time he made the following bold supposition: the optical properties of the northern and high mountain plants must resemble the properties of the Martian vegetation. Special expeditions were sent to the sub-arctic and the mountains of Pamir to study properties of northern and high altitude plants. The exhaustive material collected has fully confirmed the correctness of all conclusions and suppositions of Academician Tikhov.

Almost all plants living in the sub-arctic, ledum (*rhododendron dalfuricum*), the "cuckoo flax", dwarf birch and many others, like the Martian plants, do not have a chlorophyll absorption line in the red rays.

The remarkable discoveries of G.A. Tikhov have actually confirmed the development of life in the universe according to uniform biological laws.

This is how a new science, astrobotany, was born and has grown into astrobiology.

Are there any animals on Mars? Telescopic observations can give no direct answer to this question. But there are indirect proofs of the existence of the animal world on Mars. Vegetation on Mars as on earth requires a continuous influx of carbon dioxide. Under terrestrial conditions, animals exhale carbon dioxide, and are the principal suppliers of carbon dioxide to the atmosphere.

As yet, we know of no sources of carbon dioxide of inorganic origin on Mars. However, the gas is present in the atmosphere of the planet in spite of its constant absorption by the plants. Where does it come from? It can be assumed that it enters the atmosphere as the result of life functions of some animals inhabiting the planet.

Are there rational beings on Mars? We have come to one of the deepest questions connected with the problem of life on other planets, that of whether there are rational beings on Mars.

We do not doubt that in the infinite universe there exists a multitude of planets inhabited by rational beings.

In view of the uniformity of the laws of nature the evolution of the animal world on Mars could have reached the development of a high nervous activity in one of the animal species dwelling there. And though the rational beings of Mars may not altogether look like men, work, thinking and social life must be their general characteristic attributes, which unite rational "humanities" of different worlds.

Do we observe on Mars any formations which could be explained as artificial in origin? A whole line of scientists reply to this question in the affirmative, attributing to the Martian "canals" an artificial origin. The "canals" are formations of extended lines covering with a network the entire surface of the planet. More than 1000 "canals" are known at the present time. About 500 have been photographed, although to photograph the "canals" is very difficult, as they are on the limit of visibility.

A supposition has been put forward that the "canals" are lines of faults in the crust of the planet, that is, natural formations. However, this explanation meets with serious difficulties. Cracks in the crust can be of two kinds. They can be clefts in the surface rocks or trough-like hollows.

Let us suppose that the "canals" are cracks in the crust of Mars. Most of them are twenty to sixty kilometres wide. Cracks of such width would correspondingly have a huge depth and would appear black in colour due to light absorption. Besides, the cracks would be visible all the time. However, we cannot see the majority of the "canals" in winter. Its network emerges on the surface of the planet in spring with the thawing of the polar ice. The "canals" directly joined to the polar cap appear first, then those further away. In other words, the network of the "canals" seems to spread on the planet from the pole to the equator. Besides, the observations show that many "canals" are made up of little spots and stripes of greenish colour.

It is absolutely obvious that the "canals", which periodically appear on the surface of the planet and which are composed of separate greenish dots can not be clefts, but are surface formations.

Now, let us suppose that the "canals" are a system of faults and troughs. The origin of troughs as well as clefts is connected with the action of subterranean tectonic forces. But can we imagine that the volcanic forces could cause an identical type of sinking over the entire surface uniformly on a planetary scale? Such a supposition appears most improbable.

Further, the tectonic activity on Mars is obviously so weak at present that we do not observe any volcanic phenomena on its surface. It follows that the formation of so grandiose a system of crust cracks could have occurred only in the distant past, hundreds of millions of years ago. And yet the "canals" are situated mainly in the desert and but few of them cross the "seas".

In conditions of frequent dust storms all hollows on the surface of Mars would inevitably be filled with dust and sand to their edges.

As the "canals" turn green periodically in spring, it can be definitely stated that they represent zones of vegetation. But why is this vegetation arranged in regular extended rows?

The hypothesis of the artificial origin of the "canals" gives the answer to this question. This hypothesis suggests that the intelligent inhabitants of Mars, forced to fight with the droughts, collect water where the ice melts and direct it from there to the required localities along a colossal system of "canals". We can not, of course, discern the actual waterways. All we can see is the cultivated fields and the districts covered with plants on irrigated soil which follow the waterways.

Future explorations will show whether this hypothesis is correct. The theory of the artificial origin of the "canals" should not seem fantastic to us. We know that we occupy an average planet which does not possess an exceptional position among the stellar bodies.

Our consciousness, our mind is the legitimate higher stage of the evolution of matter. If rational beings live on earth it is logical to admit their existence also on Mars, life on which has undoubtedly taken a long evolutionary journey.

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## AN UNIDENTIFIABLE OBJECT OVER ROCKET RANGE

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A bright orange-coloured flying object was seen at Woomera rocket range on July 20th. It was not associated with any range firing, authorities said. A forecaster at the Woomera meteorological office stated that the object was sighted at 10.15 p.m., and remained visible for 15 seconds. "It was travelling almost horizontally, unlike most meteorites", said the officer. "It was moving very fast, but slower than the average meteorite." It looked like a bright shuttlecock, and appeared to break into three small parts, which burnt out.

## FOUR GLOWING OBJECTS OVER BROKEN HILL STOP SHOW

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Four strange glowing objects appeared over Broken Hill at about 10.30 p.m. on July 21st shortly after an unidentified flying object was sighted at Woomera rocket range. The screening of a film at the drive-in theatre had to be stopped as the patrons left their cars to watch the objects. Even the projectionist left his box and let the film run on its own.

Mr. Brian Grosvenor, a correspondent of the Australian Broadcasting Commission, noticed what he thought was a falling star. Then there was a fall-out of four glowing objects from the tail of the main one. These travelled in single file at low level across the sky and then faded from view. The main object, travelling at high speed, erupted then another ball of light and disappeared from view.

## TWO DOCTORS AND TWO DIRECTORS REPORT A FLYING OBJECT

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Dr. A. Quayle, a Brisbane specialist, Dr. C.A.M. Renou, a Melbourne surgeon, Mr. J.H. Horn, a Director of General Motors - Holden and Mr. W.A. Green, Managing Director of Eagers Holdings Ltd saw a disk about half the size of the full moon at 6.30 p.m. on July 8th, near Karumba in the Gulf country in Northern Queensland.

The object was a mixture of yellow, green and red iridescent light with an exhaust-like tail. It travelled at about the speed of a Canberra jet bomber. The object was silent and it flew perfectly parallel to the ground. Its altitude was estimated to be 2,000 feet. Mr. Green remarked: "It was something that none of us had ever seen before."

## GLOWING OBJECT OVER PRINCE OF WALES ISLAND

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A huge, glowing red object was sighted over a hill on Prince of Wales Island by a native woman, her husband and three children on the night of July 8th, the same night a disk was seen by two doctors and two directors in Northern Queensland. The natives reported the object stayed over or on the hill for some time, but could not be observed during the day. At night it gave off a reddish glow.

## U.S. AIR FORCE BECOMES U.S. SPACE FORCE

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The Defence Department of U.S.A. has named the Air Force as the official Space Force of the future. It has handed to the Air Force sole responsibility for all space transport and for the development, production and launching of all space booster rockets.

### THREE DISKS OVER MOSCOW - ADMISSION OF SOVIET AIR FORCE

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UFO Nachrichten for August, 1959, says that the Civilian Radar Post of the Vnukovo Airport at Moscow reported a sighting of three "disk-shaped flying objects" at the periphery of the city. The flying altitude was mentioned at 16,800 metres (approx. 55,000 feet). The minimum diameter was given as 80 metres (approx. 250 feet). The Soviet Air Force determined the position of the objects and sent jet interceptors, which failed to come into contact with them. They disappeared at a height well over 30 kilometres. It is mentioned briefly that an "optical illusion", "an atmospheric reflection" or "a natural explanation" is out of the question.

### A CIGAR-SHAPED OBJECT OVER MELBOURNE

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A cigar-shaped object in the fading twilight of the southern sky puzzled many people in Melbourne on October 17th. Eyewitnesses described the object as being at least 100 feet wide. It was surrounded by a whitish-reddish glow and appeared to have holes around its edges. The Weather Bureau said it was only a cloud. The control tower at Melbourne Airport said it could have been a giant Britannia aircraft. The object looked like a cigar jet black in colour, and it appeared for several seconds, then took off vertically and vanished.

### THOUSANDS SEE BRIGHT LIGHT WITH TAIL OVER SYDNEY

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The light was seen as long as forty seconds and travelled over Sydney, leaving a long, incandescent trail from west-south-west to east-north-east. The South Head signalman stated that the object did not appear to lose height. Other observers on the ground said it looked like a disk with about eight to ten jet exhausts. It travelled at high speed and made a whirring sound. Some observers estimated the height of the object as that of a low-flying plane. Although the Government Astronomer, Mr. Harley Wood, identified the object as a meteor, the following questions have been raised: can a meteor be sighted for 40 seconds? do meteors have trails? do they change colours? can they fly low without losing altitude?

A report from an electronics engineer said that the object definitely did not lose height, and it was brighter than Venus at full strength. The man said the light was bright enough to make the shadow cast by the gate post appear to move.

### "TALK TO SAUCER MEN" SAYS RUSSIAN ASTRONOMER

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Beings more intelligent than man possibly existed on other planets a Soviet astronomer suggested on September 30th in a statement broadcast by Moscow Radio.

The astronomer, Dr. Felix Segal, said the beings could be already making flights into space. Attempts to have meetings with these "other space travellers, if they exist, might be a good idea." Dr. Segal added "A Soviet scientist has estimated that one inhabited planetary system must exist for every million stars." "Consequently there must be a very large number of inhabited planetary systems in our galaxy." "On some of them life exists in lower forms, but there must be planets, too, whose inhabitants are even higher than man in point of development", said Dr. Segal.